

Appl. No. 10/705,174
Docket No. 8681RCR2
Amdt. dated 26 November 2007
Reply to Office Action mailed on 2 July 2007
Customer No. 27752

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A filter for providing potable water, comprising:
 - (a) a housing having an inlet and an outlet; and
 - (b) a filter material disposed within said housing formed at least in part from a plurality of mesoporous wood activated carbon filter particles and particles selected from the group consisting of mesoporous wood activated carbon filter particles coated entirely with a cationic polymer, mesoporous wood activated carbon filter particles partially coated with a cationic polymer, and mixtures thereof, wherein: [[;]]
 - (i) the sum of the mesopore and macropore volumes of said filter particles is between about 0.2 mL/g and about 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm;
 - (ii) the total pore volume of said filter particles is greater than about 0.4 mL/g and less than about 3 mL/g; and
 - (iii) the ratio of the sum of the mesopore and macropore volumes to the total pore volume of said filter particles is greater than about 0.3;

wherein said filter is operable to remove microorganisms from water flowing into said inlet and out of said outlet; and

wherein the filter has a Filter Bacteria Log Removal of greater than about 2 logs and a Filter Viruses Log Removal of greater than about 1 log.

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2. (Original) The filter of claim 1, wherein the cationic polymer is selected from the group consisting of: polyvinylamine, poly(N-methylvinylamine), polyallylamine, polyallyldimethylamine, polydiallylmethylamine, polydiallyldimethylamine, polydiallyldimethylammonium chloride, polyvinylpyridinium chloride, poly(2-vinylpyridine), poly(4-vinylpyridine), polyvinylimidazole, poly(4-aminomethylstyrene), poly(4-aminostyrene), polyvinyl(acrylamide-co-dimethylaminopropylacrylamide), polyvinyl(acrylamide-co-dimethylaminoethylmethacrylate), polyethyleneimine, polylysine, DAB-Am and PAMAM dendrimers, polyaminoamides, polyhexamethylenebiguanide, polydimethylamine-epichlorohydrine, aminopropyltriethoxysilane, N-(2-aminoethyl)-3-aminopropyltrimethoxysilane, N-trimethoxysilylpropyl-N, N, N-trimethylammonium chloride, bis(trimethoxysilylpropyl)amine, chitosan, grafted starch, the product of alkylation of polyethyleneimine by methylchloride, the product of alkylation of polyaminoamides with epichlorohydrine, cationic polyacrylamide with cationic monomers, dimethyl aminoethyl acrylate methyl chloride (AETAC), dimethyl aminoethyl methacrylate methyl chloride (METAC), acrylamidopropyl trimethyl ammonium chloride (APTAC), methacrylamodopropyl trimethyl ammonium chloride (MAPTAC), diallyl dimethyl ammonium chloride (DADMAC), ionenes, silanes and mixtures thereof.
3. (Previously Presented) The filter of claim 1, wherein the cationic polymer is selected from the group consisting of: polyaminoamides, polyethyleneimine, polyvinylamine, polydiallyldimethylammonium chloride, polydimethylamine-epichlorohydrin, polyhexamethylenebiguanide, and poly-[2-(2-ethoxy)-ethoxyethyl-guanidinium] chloride.
4. (Previously Presented) The filter of claim 1, wherein at least a portion of the mesoporous wood activated carbon filter particles, the mesoporous wood activated carbon filter particles coated entirely with a cationic polymer, or the mesoporous

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wood activated carbon filter particles partially coated with a cationic polymer are further coated with silver or a silver containing material.

5. (Currently Amended) The filter of claim 1, wherein the sum of the mesopore and the macropore volumes of said plurality of mesoporous wood activated carbon filter particles is between about 0.2 0.4 mL/g and about 2 1 mL/g.
6. (Previously Presented) The filter of claim 1, wherein said plurality of mesoporous wood activated carbon filter particles has a Bacteria Removal Index of greater than about 99% and a Viruses Removal Index of greater than about 90%.
7. (Cancelled)
8. (Original) The filter of claim 1, wherein said filter material has a single-collector efficiency, η , of between about 0.005 and 0.25, and a filter coefficient, λ , between about 40 m^{-1} and about $14,000\text{ m}^{-1}$.
9. (Previously Presented) The filter of claim 1, wherein said plurality of mesoporous wood activated carbon filter particles are basic, have a point of zero charge between about 9 and about 12, and an Oxidation Reduction Potential between about 290 mV and about 175 mV.
10. (Cancelled)
11. (Cancelled)
12. (Currently Amended) A kit comprising:
 - i) a filter to claim 1; and
 - ii) a package for containing the filter; and

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wherein either the package or the filter housing comprises information that the filter or filter material provides: bacterial removal; virus removal; microbial removal; killing of bacteria, killing of viruses, killing of microbials, or any combination of these.

13. (Currently Amended) A kit comprising:
- i) a filter according to claim 15; and
 - ii) package for containing the filter; and

wherein either the package or the filter housing comprises information that the filter or filter material provides: bacterial removal; virus removal; microbial removal; killing of bacteria, killing of viruses, killing of microbials, or any combination of these.

14. (Previously Presented) The filter of claim 4 wherein the cationic polymer is selected from the group consisting of: polyaminoamides, polyethyleneimine, polyvinylamine, polydiallyldimethylammonium chloride, polydimethylamine-epichlorohydrin, polyhexamethylenebiguanide, and poly-[2-(2-ethoxy)-ethoxyethyl-guanidinium] chloride.
15. (Currently Amended) ~~A filter for providing potable water, comprising:~~ The filter of claim 1, wherein the
- ~~(a) a housing having an inlet and an outlet; and~~
 - ~~(b) a filter material disposed within said housing comprising a plurality of mesoporous activated carbon filter particles and further comprises a binder binding the plurality of mesoporous activated carbon filter particles;~~
- ~~wherein at least a portion of said mesoporous activated carbon filter particles are at least partially coated with a cationic polymer;~~

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~~wherein the filter has a Filter Bacteria Log Removal of greater than about 2 logs
and a Filter Viruses Log Removal of greater than about 1 log.~~

16. (Cancelled)
17. (New) The filter of claim 3, wherein the cationic polymer is polydiallyldimethylammonium chloride [poly-DADMAC].
18. (New) The filter of claim 1, wherein the filter has a Filter Bacteria Removal of greater than about 6 logs, and a Filter Viruses Removal of greater than about 4 logs.
19. (New) The filter of claim 1, wherein the filter has a single-collector efficiency, η , of greater than about 0.002.
20. (New) The filter of claim 1, wherein the pore volume is at least 0.03 mL/g for pore diameters between about 4 nm and about 6 nm.